UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/663,068	09/16/2003	Tord Bjorsne	P03,0340	2046

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EXAMINER
GENTRY, DAVID G

ART UNIT	PAPER NUMBER
2114	

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Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)
Office Action Summary	10/663,068	BJORSNE ET AL.
	Examiner	Art Unit	
	David G. Gentry	2114	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on *16 September 2003*.

2a) ☐ This action is **FINAL**.   2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *1-23* is/are pending in the application.

     4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) *1-23* is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☒ The drawing(s) filed on *16 September 2003* is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.

     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

     a) ☒ All   b) ☐ Some *   c) ☐ None of:

         1. ☒ Certified copies of the priority documents have been received.

         2. ☐ Certified copies of the priority documents have been received in Application No. _____.

         3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

     * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
     Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
     Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 2, 9-12, and 15-22 are rejected under 35 U.S.C. 102(e) as being

anticipated by Barford et al. (U.S. Patent No. 6,691,249).

As per claim 1, Barford discloses a method for assisting identification of a

defective functional unit in a technical system comprising a plurality of functional units

(column 3, lines 46-50), said method comprising the steps of:

subjecting said technical system to a test to obtain a first test result relating to

operation of said technical system (column 3, line 65- column 4, line 12); and

using a test model in which information is compiled with respect to which of said

functional units were tested in said test, and using a system model in which information

is compiled regarding assembly of said functional units in said technical system,

automatically processing said test result by analyzing said test result to determine a

group of said functional units which could be defective based on said test result, thereby

obtaining an analysis result, and using said analysis result to assign respective defect

probabilities to the functional units in said group (column 4, lines 40-54).

As per claim 2, Barford discloses a method comprising comparing the respective defect probabilities of said functional units in said group to a defect probability limit, and designating any of said functional units in said group as being defective that has a defect probability assigned thereto that exceeds said probability limit (column 5, lines 52-64; Note: the probability limit is calculated to be the pattern with the second highest probability. The functional unit with the highest probability is marked as the defective functional unit).

As per claim 9, Barford discloses a method wherein each of said functional units in said group has a pre-test defect probability existing before said first test, and wherein the step of assigning the respective defect probabilities to said functional units in said group comprises, for each of said functional units in said group, formulating a mathematical combination of said pre-test defect probability and a defect probability based on said test (pre-test: figure 2, item 260; first test: figure 2, item 280; Note: the pre-test allows for giving probabilities to functional units. The first test allows for running tests based on these probabilities to further diagnose the functional units; column 5, lines 52-64).

As per claim 10, Barford discloses a method comprising formulating said mathematical combination using a Bayesian network model (column 6, lines 53-67).

As per claim 11. Barford discloses a method comprising employing exchangeable structural units as said plurality of functional units in said technical system (column 4, lines 49-54).

As per claim 12, Barford discloses a method comprising employing, as one of

said plurality of functional units in said technical system, a connection between other

functional units in said technical system (column 3, lines 46-50; Note: it is understood

that the components in a system are connected in some way).

As per claim 15, Barford discloses a method comprising testing individual

functioning of at least one of said plurality of functional units in said test (column 7, lines

39-44; Note: the number of functional units to be tested for failure is indicated in this

step).

As per claim 16, Barford discloses a method comprising testing multiple

functional units, within said plurality of functional units, along a test signal path as said

test (column 7, lines 39-44; Note: the number of functional units to be tested for failure

is indicated in this step).

As per claim 17, Barford discloses a method comprising selecting said test from

among a plurality of different tests in a computerized test program by parameterization

(column 3, line 65- column 4, line 4; Note: it is understood that the test to be used is

decided upon using some form of parameterization).

As per claim 18, Barford discloses a method wherein the step of testing said

technical system comprises implementing a plurality of tests, from among said different

tests in said test program, having a common functional form, as a test block, and calling

said test with a single call command within said test program (column 5, line 65- column

6, line 6; Note: a test block is used to focus suspicion towards a particular unit).

As per claim 19, Barford discloses a method comprising, using said test model,

compiling information as to which of said functional units was tested by said test block

(column 9, lines 14-19; Note: it is understood that by storing the diagnostic results of the

good and bad components, an indication of which functional units were tested is also

stored).

As per claim 20, Barford discloses a method comprising generating said test

model by configuring a test program model of said technical system comprising a

specification of said test block (column 5, line 65- column 6, line 6).

As per claim 21, Barford discloses a method comprising specifying said test

block by at least one criterion selected from the group consisting of purpose (column 5,

line 65- column 6, line 6; Note: the purpose is to identify the failed units).

As per claim 22, Barford discloses a method comprising generating said test

model based on said plurality of functional units (column 7, lines 39-44).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148

USPQ 459 (1966), that are applied for establishing a background for determining

obviousness under 35 U.S.C. 103(a) are summarized as follows:

1.   Determining the scope and contents of the prior art.

     2.   Ascertaining the differences between the prior art and the claims at issue.

     3.   Resolving the level of ordinary skill in the pertinent art.

     4.   Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 3-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Barford in view of Mongan et al. (U.S. Patent No. 6,304,982).

Barford is relied upon for reasons stated in the previous section.

As per claim 3, Barford discloses a method wherein said test is a first test, and

comprising the additional step of, if none of said respective defect probabilities assigned

to said functional units in said group exceeds said defect probability limit, designating a

second test (column 11, lines 15-31; Note: another test is implemented if the threshold

in danger 2 is not reached).

Barford fails to disclose a method where the second test more precisely refines

the defect probabilities.

Mongan discloses a method where the second test more precisely refines the

defect probabilities (column 2, lines 7-23).

It would have been obvious to a person of ordinary skill in the art at the time the

invention was made to include the more precisely refined second test as described by

Mongan in the method described by Barford. It would have been obvious because

Mongan describes his method as increasing efficiency by reducing the tests needed to

show the defect (column 1, line 66- column 2, line 4).

As per claim 4, Mongan discloses a method wherein the step of designating a

second test comprises designating a plurality of second test suggestions; and

automatically presenting said plurality of second test suggestions according to at least one criterion that characterizes a relevancy of the respective test suggestions for identifying a defective functional unit in said group (column 9, lines 13-18).

As per claim 5, Mongan discloses a method wherein said plurality of test suggestions includes a most relevant test suggestion, and automatically implementing said most relevant test suggestion as said second test (column 9, lines 13-18).

As per claim 6, Barford discloses a method comprising the additional steps of:

(c) comparing said respective defect probabilities to said defect probability limit and designating any of said functional units in said group having a more precise defect probability that exceeds said defect probability limit as defective (column 5, lines 52-64; Note: the probability limit is calculated to be the pattern with the second highest probability. The functional unit with the highest probability is marked as the defective functional unit); and

(d) if none of said respective, more precise defect probabilities exceeds said defect probability limit, designating a further test of said functional units in said group (column 11, lines 15-31; Note: another test is implemented if the threshold in danger 2 is not reached).

Mongan discloses a method comprising the additional steps of:

(a) implementing said second test on said technical system to obtain a second test result (column 9, lines 6-9; Note: it is understood that the system is performing the test if it is receiving results);

(b) using said first test result, said information from said test model as to which of said functional units was tested, said information from said system model as to said assembly of said function units in said technical system, analyzing said second test result to more precisely refine the respective defect probabilities of the functional units in said group, thereby obtaining respective, more precise defect probabilities (column 9, lines 6-37; Note: it is understood the test, results, and assembly of function units are used by the decision block to reduce the test);

(d) designating a further test of said functional units in said group to more precisely refine the respective more precisely refined defect probabilities obtained in step (b), and automatically implementing said further test (column 9, lines 38-39).

As per claim 7, Mongan discloses a method comprising repeating step (c) until at least one of said respective defect probabilities is more precisely refined so as to exceed said defect probability limit (column 9, lines 6-37).

As per claim 8, Mongan discloses a method wherein step (c) comprises designating a plurality of further tests for more precisely refining the respective more precisely defined defect probabilities obtained in step (b), automatically presenting said plurality of further tests according to at least one criterion representing a relevancy of the respective further tests for identification of a defective functional unit, and automatically implementing one of said plurality of further tests that has a highest relevancy for identification of a defective functional unit (column 9, lines 6-37).

Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Barford in view of Ahmad (U.S. Patent No. 6,029,258).

Barford is relied upon for reasons stated in the previous section.

Barford fails to disclose a method where the connection is selected from a group of electrical and optical signal transmitters.

Ahmad discloses a method comprising selecting said connection from a group consisting of electrical signal transmitters and optical signal transmitters (column 4, lines 57-64).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to include the electrical and optical signal transmitters as described by Ahmad in the method described by Barford. It would have been obvious because both electrical and optical signals are well-known signals used for connections between functional units (column 4, lines 57-64).

Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Barford in view of Bellamy et al. (U.S. Patent No. 3,928,830).

Barford is relied upon for reasons stated in the previous section.

Barford fails to disclose a method comprising employing an energy supply connection as said connection.

Bellamy discloses a method comprising employing an energy supply connection as said connection (column 4, lines 18-27).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to include the energy supply connection as described by Bellamy in the method described by Barford. It would have been obvious because Bellamy's method can further detect errors in the power units (column 4, lines 18-27).

Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Barford

in view of Hershey et al. (U.S. Patent No. 6,175,934).

Barford is relied upon for reasons stated in the previous section.

Barford fails to disclose a method comprising a super test model.

Hershey discloses a method comprising generating said test model by

configuring a super test model of said technical system from a plurality of further

technical systems related to said technical system to be tested (column 1, line 66-

column 2, line 22).

It would have been obvious to a person of ordinary skill in the art at the time the

invention was made to include the super test configuration as described by Hershey in

the method described by Barford. It would have been obvious because Hershey's

configuration is advantageous in predicting the assessment of systems by gathering

information from other systems (column 1, lines 53-63).

Conclusion

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to David G. Gentry whose telephone number is (571) 272-

2570. The examiner can normally be reached on M-F 8-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Scott Baderman can be reached on (571) 272-3644. The fax phone number

for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).

SCOTT BADERMAN
SUPERVISORY PATENT EXAMINER